



TECHNICAL REPORT EL-81-11

DEVELOPMENT OF A MANAGEMENT PLAN FOR CRANEY ISLAND DISPOSAL AREA

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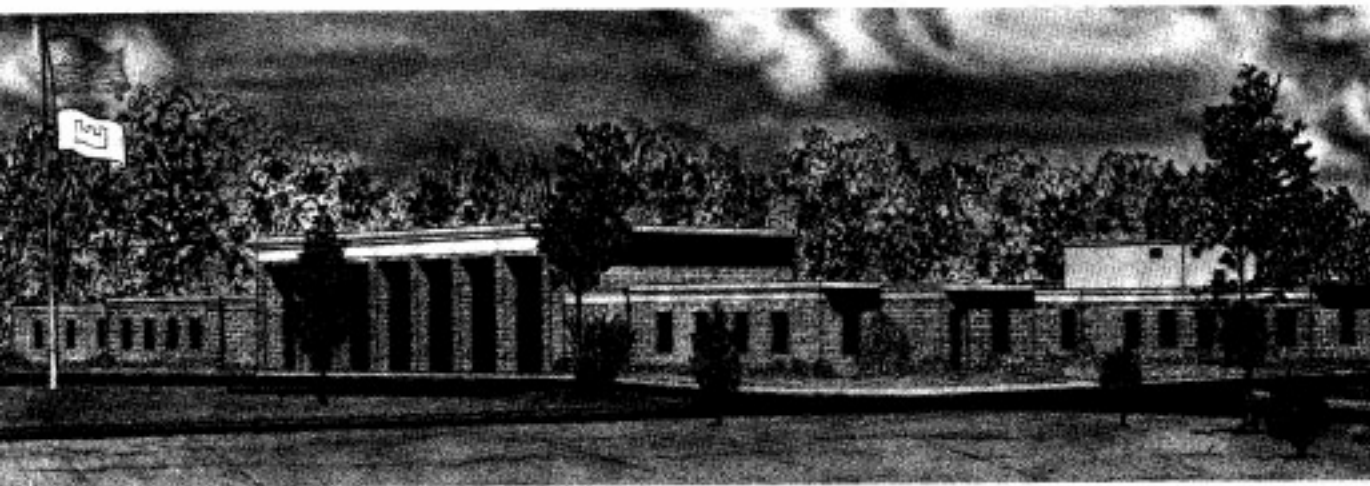
Michael R. Palermo, F. Douglas Shields
and Donald F. Hayes

Environmental Laboratory
U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Craney Island disposal area is a 2500-acre confined dredged material disposal site located near Norfolk, Virginia, one of the largest such sites in the Nation. The purpose of constructing such a diked disposal area is twofold: (a) to provide adequate storage capacity for dredged material over the design life of the facility and (b) to provide adequate sedimentation of dredged solids to maintain water quality of effluent. (Continued)		

20. ABSTRACT (Continued).

Plans for the site were developed in the early 1940's to provide a long-term disposal area for material dredged from channels and ports in the Hampton Roads area. Construction of dikes at Craney Island was completed in 1957, and material has since been placed almost continuously within the disposal area using both direct pipeline discharge and hopper pumpout. Over 130 million cu yd has been placed within the containment to date, and maintenance requirements now average 5 million cu yd per year. The average dredged material fill elevation is now +15 ft mean low water (MLW), and stability analyses indicate that an elevation of +30 ft MLW is feasible.

Adequate dredged material disposal areas within the Hampton Roads vicinity are becoming increasingly difficult to secure. A management plan for the Craney Island disposal area was therefore developed to ensure the most effective use of the containment in future years. Objectives for the plan include the following: (a) maximize volumetric disposal capacity, (b) dewater and densify fine-grained material to the greatest extent feasible, (c) reclaim and remove usable material for productive use, (d) maintain acceptable water quality of effluent, and (e) abide by all legal and policy constraints.

Development of the management plan included an extensive evaluation of management alternatives based on data accumulated through field investigations and laboratory testing. Alternative schemes to subdivide the disposal area using interior dikes were evaluated from the standpoint of both water quality and storage capacity. Management and operational guidelines were then developed to ensure the most efficient utilization of the disposal area and to provide maximum storage capacity within each of the subcontainments. Guidance was also provided concerning construction procedures and modifications required of the existing facility. Technology regarding confined dredged material disposal developed during the Corps of Engineers Dredged Material Research Program (DMRP) was extensively used in the plan development.

Implementation of the management plan will realize a significant savings in available storage capacity without reducing effluent water quality. It is estimated that projected disposal operations could continue for approximately 36 years (until an average fill elevation of +30 ft is attained) using the recommended management approach, as compared to an estimated 19 years using the present mode of operation.